APPENDIX

EXCERPT FROM NEWTON'S TELECOM DICTIONARY

(3 pages follow)

NEWTON's TELECOM DICTIONARY

distant automatic telephone systems present us mindless requests: Dial 1 if you live in Northern Illinois. Dial 2 if you live in Southern Illinois, etc.

Time Slice In a multi tasking environment, each task is allotted a portion of the CPU's overall processing power. This portion is called a time-slice. And it's usually measured in milliseconds. The CPU switches between tasks, and those with higher priority receive more time-slices than lower-priority tasks. See Time Slicing.

Time Slicing The term used to describe the dividing of a computer resource so multiple applications or tasks requesting the resource are allocated some amount of the resource's time. See Time Slice.

Time Slot 1. In time division multiplexing (TDM) or switching, the slot (brief moment in time) committed to a voice, data or video conversation. It can be occupied with conversation or left blank. But the slot is always present. You can tell the capacity of the switch or the transmission channel by figuring how many slots are present. See also TDM. 2. An SCSA term. The smallest switchable data unit on the SCbus or SCxbus Data Bus. A time slot consists of eight consecutive bits of data. One time slot is equivalent to a data path with a bandwidth of 64 Kbps. See S.100 and SCSA.

Time Slot Assignment TSA. The assignment of a time slot in a forward time division multiplexed (TDM) facility in order to accommodate traffic from a tributary TDM facility, or in reverse. TDM-based transmission requires that time slots be committed across the network, from end-to-end. Therefore, it is essential that time slots be assigned by the various multiplexers that interconnect TDM circuits. Time-slot assignment enables traffic to be added to any circuit from any tributary, or to be dropped from any circuit to any tributary. The term is most commonly used in the SONET domain. See also SONET, TDM, Time Slot, and Time Slot Interchange.

Time Slot Interchange TSI. The interchanging of time slot between TDM-based links. If the timeslot committed to a given transmission (i.e., call) on an incoming tributary link is already assigned to another transmission on the outgoing link to which it connects, another time slot is selected and assigned. The term is most commonly used in the SONET domain. See also SONET, TDM, Time Slot, and Time Slot Assignment.

Time Space Time System TST. The most common form of switching matrix for small digital telephone exchanges in which a space switch is sandwiched between two time switches.

Time Switch A device incorporating a clock which arranges to switch equipment on or off at predetermined times.

Time T December 31, 1996, 2359 hours UTC (Universal Time Coordinated). The exact time when the maximum digit length allowed in international dialing was increased from 12 to 15 digits. It seems silly to be so precise about such a thing, but the Time T deadline marked the beginning of the expansion of the number of digits within the numbering plans of the various countries around the world. All of the switches in the networks had to be reprogrammed to understand the lengthened dialing plan, or else the new numbers couldn't be processed. Some switches were reprogrammed, but lots were not. We needed a lengthened dialing plan because we are running out of telephone numbers, and for a bunch of reasons. Blame it on fax machines, cell phones, and pagers. For that matter, blame it on me; my family of four has 18 separate telephone numbers, including fax lines, modem lines, pager (beeper) lines and cell phones. For that matter, blame it on your family; they probably have as many as I have. See also NPA and UTC.

Time To Live TTL. A mechanism used in the IP protocol, the TTL is an eight-bit field in the IP header. TTL begins at 255 (2 raised to the power eight minus one) seconds, as the TTL field in the IP header is eight bits wide, and as the value of "00000000" is the TTD (Time To Die). As an IP packet is accepted in the buffer of a switch or router, the TTL is decremented until it exits that device. This happens again and again, until either the packet reaches its destination, or until the TTL is decremented to the "00000000" value and it is killed. Without the TTL mechanism, errant packets would circle forever in a "closed loop" and the Internet (or other IP-based network) would be brought to its knees.

Time Varying Media An SCSA definition. Time-varying media, such as audio data (as opposed to space-varying media, such as image data). See S.100.

Time Zone Calling The ability of a dialing system to start and stop calling at predetermined times to different time zones.

Timecode Any of several addressing standards used to interlock and sequence audio and video information.

Timed Detection As a substitute for answer supervision, some long distance phone companies use call timing and estimate that a call is completed if the caller remains off-hook for 30 seconds or more. This is not necessarily accurate, of course. The caller might be holding, thinking the person is in the shower, out in the garden, etc. Little does the caller know he is now being charged to listen to ringing signals. A long distance phone company that is "equal accessed" doesn't have this problem. A long distance company that isn't equal accessed — one that you have to dial directly with a local call — might well have this problem. Rule: When in doubt, don't wait too long on the phone listening to endless ringing. Hang up. Count to ten. Then redial.

Timed Purge A feature of interactive voice response systems, especially fax-back systems. If the document isn't requested for x number of days or weeks or if the document ages to a certain point, the system automatically deletes the document.

Timed Recall Your PBX can be instructed to place a call at a designated time. When the time comes, your PBX rings your phone. When you answer your phone, the PBX places the call.

Timed Reminders At 20-second intervals, timed reminders will alert an attendant that a call is still waiting, a called line has not yet been answered or a call is still on hold. Timed reminders can be made longer or shorter. They can alert attendants to all sorts of events and non-events.

Timeout Two computers are "talking" on a network. One (for any reason) fails to respond. The other computer will keep on trying to communicate with the other computer for a certain amount of time, but will eventually "give up." This is called timeout. A timeout also happens in a single standalone computer. If a device (e.g. a printer) is not performing a task or responding, the computer will wait before figuring that something wrong has happened. That time period is called timeout.

Times T A new, expanded dialing plan developed by the ITU-T. Times T increases the maximum number of dialed digits from the current 12 to 15, plus the three-digit international access code (country code).

Timesharing The use of one computer by many users at one time. Each user is typically sitting in front of a data terminal and connected to the master computer through communications lines — local or long distance. The user asks the computer to work on his task, whether it be a simple as looking up some stock prices, checking an airline reservation or doing some accounting calculations. It appears to each user as if he/she has a computer dedicated to his own task, but the computer is large and powerful, and is moving rapidly from one user's task to the next. Timesharing's advantages are twofold: 1. The user may find it cheaper to time share a computer than to buy his own. 2. The computer may have valuable and extensive information in it, which would be virtually impossible to duplicate or handle in many stand-alone computers. Timesharing was more popular when computers were more expensive.

Timeslot Management Channel TMC. A dedicated channel for sending control messages used to set up and tear down calls in a T-1 frame. In a GR-303 interface group, the primary TMC is usually in channel 24 of the first DS1, while a redundant TMC (if used) would be located in a different DS-1.

Timestamp A mark placed on a data or voice transaction used for throughput and processing calculations. Can be used to determine total work time by placing one at the beginning and one at the end of a transaction. Timestamps are used in productivity measurement, in call accounting and traffic analysis systems, and a wide variety of other applications. Timestamps also are used to synchronize various network devices, such as IRC (Internet Relay Chat) servers.

Timing In the beginning, telephone systems were very simple, circuit-switched animals. When I called you, we used the entire bandwidth on the wires for our conversation. If something untoward happened, one of us would simply ask the other to repeat what he said. No sweat. Quickly it became apparent to the phone industry that devoting an entire circuit to one conversation was wasteful. So various methods to put more than one conversation on a circuit was devised. These were initially called multiplexing techniques. The early ones were typically analog, with different conversations occupying different frequencies. Filters could easily pull the various conversations out. But then came the digital revolution, which made it suddenly cheap to represent phone calls by bits and mush many conversations into one large stream of bits. (The original digital channels are originally thought of purely as "pair gain.") How to pull the various conversations out of that one gigantic bit stream? Think T-1 with a stream of 1.544 million bits per second, or 24 conversations each encoded at 64,000 bits per second. How to figure out where one conversation started and ended? You could add information to the flow. Call it "framing" information. That information would frame the data. If you know what the frame looked like, you could pluck the information out of it. The T-1 trunk's 24 channels of 64,000 bits per second, each carrying 8,000 8-bit bytes per second. Each byte represented one sample of

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